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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,357	10/24/2003	Edgar R. Mallison	P02,00205(H0002744)	2592

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EXAMINER	
DANG, HUNG Q	
ART UNIT	PAPER NUMBER
2612	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,357	MALLISON ET AL.	
	Examiner	Art Unit	
	Hung Q. Dang	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/7/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 10, 11, 19, 27, 28, 36, 37, 45-47, 50, 53 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tubel et al. U.S. Patent 6,192,980 in view of MAYES U.S. Pub 2005/0016770.

Regarding claim 1, Tubel et al. teaches a well control and monitoring system for the control and monitoring of a plurality of wells comprising:

a remote control center (Figure 1, unit 10; column 8, lines 44-60);

a plurality of surface control and monitoring systems (Figure 1, units 24; column 9, lines 30-33), wherein each of the wells is provided with a corresponding one of the surface control and monitoring systems, and wherein the surface control and monitoring systems are communication with the remote control center (See figure 1); and

a plurality of down hole monitoring and control systems (Figure 2, units 22; column 9, lines 46-64), wherein each of the wells provided with at least one of the down hole monitoring and control systems (see figure 2; units 22 are downhole monitoring/control systems), wherein each of the down hole monitoring and control systems is in communication with at least one of the surface control and monitoring systems (column 9, lines 46-64);

except wherein each of the down hole monitoring and, control systems comprises a non-cooled, high temperature controller arranged to perform monitoring and control functions within a corresponding one of the wells.

Mayes teaches a well drilling system, which discloses the desire to have electronic components that can reliably operate in high temperature environments; and that there have been commercially available electronic components (such as ceramic components, multi-chip modules or silicon-on-insulator components) for use in high temperature environments even at 200 degree C (paragraphs [0009], [0012], [0049]). The disclosed silicon-on-insulator components are also non-cooled.

One skilled in the art would recognize the harsh, high-temperature in downhole drilling environments and the need of using electronic components that can endure such high temperature, as disclosed by Mayes, therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide a non-cooled, high temperature controller arranged to perform monitoring and control functions within a corresponding one of the well disclosed by Tubel et al., so that the lifetime of said controller can be increased.

Regarding claims 2 and 28, the downhole monitoring system disclosed by Tubel et al. also comprises a sensor (figure 6, units 56, 58, 59) coupled to the controller.

Claim 19 is rejected for the same reasons as the rejection of claim 1 regarding the claimed non-cooled, high temperature controller and transceiver.

Claims 27 and 46 are rejected for the same reasons as the rejection of claim 1. The surface control/monitoring system 24 disclosed by Tubel et al. also comprises a

controller and a transceiver (Figure 5, controller 30 and transceiver 36). The second monitoring/control system 22 disclosed by Tubel et al. also comprises a controller (Figure 6, unit 50) and a transceiver (figure 6, unit 52).

Regarding claims 11, 37 and 53, the downhole control/monitoring system disclosed by Tubel et al. also comprises at least one electromechanical device (Figure 6, unit 64) controlled by the controller.

Regarding claim 45, the first monitoring/control system (Figure 1, unit 24) disclosed by Tubel et al. is also located at a surface of the well.

Regarding claim 50, the downhole system disclosed by Tubel et al. is also self-powered either by using a turbine generator or battery (column 5, lines 30-37).

Regarding claim 60, the signals transmitted and received in the downhole control/monitoring system disclosed by Tubel et al. also comprises pulses (paragraph bridging columns 9-10).

Regarding claims 10, 36 and 47, Tubel et al. also teaches conveying acoustic information signal through at least one well (column 10, lines 5-17). Clearly, there must be a transducer to perform the conversion between an electrical signal and an acoustic signal so that data can be digitally processed.

3. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tubel et al. U.S. Patent 6,192,980 in view of MAYES U.S. Pub 2005/0016770 in further view of applicant's prior art admission.

Regarding claim 48, as mentioned above, Tubel et al. in view of Mayes teaches the downhole control/monitoring system of claim 47, **except** comprising an anechoic material coating at least a portion of the transducer.

Applicant's prior art admission discloses that anechoic coatings are known for used in the interface between the transmission media and the transducer in order to reduce reflected signals and to enhance the desired acoustic signals (page 14, lines 19-23).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide an anechoic material coating to at least a portion of the transducer disclosed by Tubel et al. in view of Mayes in order to reduce reflected signals and to enhance the desired acoustic signals

4. Claims are 3-9, 12-18, 20-26, 29-35, 38-44, 54-59 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tubel et al. U.S. Patent 6,192,980 in view of MAYES U.S. Pub 2005/0016770 and in further view of Sullivan et al. U.S. Patent 7,066,280.

Regarding claims 3-9, 12-18, 20-26, 29-35, 38-44, 54-59 and 61, Tubel et al. in view of Mayes teaches the well control and monitoring system of claim 2. However, Tubel et al. in view of Mayes does not specifically discloses a multiplexer, amplifier, A-D converter coupling the sensor to the controller of the at least one of the downhole monitoring/control systems. Note: those electrical components are commonly equipped in electrical device/system for digital data processing.

Sullivan et al., in the same field of endeavor, teaches a downhole monitoring apparatus, which comprises an A-D converter, multiplexer (Figure 9, units 229 and 231) and an amplifier (figure 5, unit 427; paragraph bridging columns 8-9) coupling the sensor to the controller for converting analog signal to digital, multiplexing the input signals, and amplifying received signals of the at least one of the downhole monitoring/control systems (paragraph bridging columns 13-14).

Since Tubel et al. in view of Mayes suggests using non-cooled and high-temperature electrical components in harsh downhole environment, as mentioned above, so that the lifetime of the electronic components can be increased; and Sullivan et al. also recognize the adverse effects of high temperatures on downhole electric components (column 21, lines 10-17); therefore, it would have been obvious to one skilled in the art to provide non-cooled, high temperature downhole electrical components such as A-D converter, amplifier or multiplexer to the downhole control/monitoring system disclosed by Tubel et al. in view of Mayes, as evidenced by Sullivan et al., in order to achieve optimal downhole data processing and protect downhole electrical components from severe temperature.

5. Claims 49, 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tubel et al. U.S. Patent 6,192,980 in view of MAYES U.S. Pub 2005/0016770 and in further view of Hama et al. U.S. Patent 5,896,926.

Regarding claims 49, 51 and 52, Tubel et al. in view of Mayes teaches the downhole control/monitoring system of claim 46, **except** wherein the downhole controller is powered remotely by electrical wire or optical cable, respectively.

Hama et al. also teaches a downhole system, wherein the downhole system can be remotely controlled and powered from the surface unit through the use of optical fiber cable or electrical wire (column 6, lines 45-52 and column 11, lines 45-52).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide remotely powering the downhole system disclosed by Tubel et al. in view of Mayes by using electrical wire or optical cable, as evidenced by Hama et al., so that the downhole system can be remotely powered through the use of electrical wire or optical cable.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571) 272-3069. The examiner can normally be reached on 9:30AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hung Q Dang
12/19/2006
H.D.

HD

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